

**INTERNAL CAPABILITIES, EXTERNAL NETWORK
POSITION, AND KNOWLEDGE CREATION**

by

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ABSTRACT

Despite the general consensus on the importance of interfirm networks, there is an ongoing debate centering on which type of network structure is most beneficial to firm performance. While spanning structural holes—a network position with disconnected partners—is argued to be advantageous in terms of providing access to diverse knowledge, existing literature provides mixed results regarding the performance implications of structural holes. Given that strategic alliances have become a major mechanism for tapping into distant knowledge, understanding the ways in which firms manage and capitalize on contextually disparate knowledge in a network context has become increasingly important. Prior studies of interfirm networks implicitly assume that external knowledge afforded by interfirm networks can seamlessly transfer into firms' competitive advantage. Nonetheless, embeddedness in a privileged network position does not necessarily guarantee that a firm can fully exploit information potential. Firms differ in their abilities to process knowledge, and the heterogeneity of firms may determine the gains that can be actualized as a result of network positions. The failure to account for firms' heterogeneity may lead to an incomplete understanding of the consequences of structural holes.

To address these limitations, this study examines the role of firms' abilities to process knowledge in affecting knowledge creation in the context of interfirm networks. Building upon social capital theory, the knowledge-based view, and organizational learning theories, I argue that the extent to which a network position rich in structure holes influences firms' knowledge creation is contingent upon firms' abilities to process knowledge. That is, when occupying a structural hole position, firms with greater capabilities to acquire, disseminate, and integrate knowledge generate more new knowledge than firms with lower capabilities. In addition, I contend that technological diversity—the scope of a firm's existing knowledge—influences firms' ability to exploit external knowledge from structural holes. Specifically, when firms span structural holes, those that have attained moderate levels of technological diversity will generate more new knowledge than firms with high and low levels of diversity.

This model was tested using a sample of 191 firms across various high-technology industries. Data was collected through a mailed survey and secondary data sources. Outcome variable, which was the rate of knowledge creation, was measured by granted patent counts. For firms that span structural holes, empirical results show differential effects of firms' capabilities on knowledge creation. The findings indicate that technological knowledge diversity is facilitative to knowledge creation when firms span structural holes. In addition, results suggest that spanning structural holes and internal knowledge acquisition capability are substitute mechanisms for firms' external knowledge search. While spanning structural holes provides access to diverse external knowledge and compensates for the lack of such internal capability, a cohesive network is preferred for firms with well-developed capabilities of acquisition. The transfer of fine-grained and context-specific knowledge in a dense network enables intensive and deep search of knowledge. This study also highlights the difficulties and costs of disseminating and integrating a wide span of knowledge. The potential of cross-fertilization from a wide scope of knowledge can be jeopardized by the increasing coordination costs associated with processing contextually divergent knowledge. This study also provides alternative theoretical underpinning and propositions for future research.

Based on the knowledge-based view and social capital theory, this study is the first empirical research that examines the performance implications of the interacting relationships between structural holes and knowledge processing capabilities. It provides several theoretical and empirical contributions. It demonstrates that external network structures do not yield universal impacts on firm performance, and the benefits provided by network structure are dependent on firms' abilities to exploit it to their benefit. This study provides a more thorough understanding of the ways in which a focal firm can act upon external context for value creation.